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NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 206

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NEW ENVOY FOR DISARMAMENT DISCUSSES NUCLEAR CONTROLS

Plan for Pleas to U.S., USSR

Brisbane THE COURIER-MAIL in English 17 Aug 83 p 8

[Text]

AUSTRALIA will approach both the United States and Russia and urge them to stop their nuclear arms build-up.

The newly appointed ambassador for disarmament, Mr Richard Butler, will also ask both superpowers to seek ways to wind down their nuclear arsenals.

Mr Butler, who was in Brisbane yesterday, outlined these initiatives at a public meeting on disarmament which the Foreign Affairs Department called at the Australian Government Centre.

Mr Butler was questioned on Federal Government disarmament and foreign affairs policies by representatives of the People for Nuclear Disarmament, Australian Peace Committee, religious groups and trade unions.

He admitted that it would be difficult to apply the Government's philosophy and make it work in the present arms control and strategic situation.

"Because it is hard, that is no reason not to do it — to seek ways of stopping the nuclear arms race," he said.

He told the meeting that the Federal Government "fully admitted" it

needed help from people concerned about disarmament. He hoped for ideas which could be translated into action.

Mr Butler said he was having public meetings around Australia before taking up his appointment in Geneva.

He promised regular visits to Australia so the consultative process with concerned groups could continue.

"The build-up in nuclear arms has reached a stage of danger that everybody has a right to be heard. We will be heard," he said.

Mr Butler said Australia also would support the renewal of the nuclear non-proliferation treaty. He said that if it collapsed, four or five new nuclear weapons powers could emerge.

More Active Australian Role

Perth THE WEST AUSTRALIAN in English 19 Aug 83 p 18

[Text]

MELBOURNE: The dreadful spiral of nuclear weapons can be stopped, according to Australia's new ambassador for disarmament, Mr Richard Butler.

However, Mr Butler, who will be based in Geneva, said yesterday that the path to peace was difficult.

He was speaking at the Victorian branch of the Australian Institute of International Affairs.

He signalled that Australia was set to take "a much sharper, clearer and active role" to urge the two superpowers to end the weapons race and scale down their arsenals.

"We will be acting vigorously," Mr Butler said.

He said that Australia's voice was most respected in the international arena and the Government would put its position firmly to both the United States and the USSR.

The nuclear problem was on the mind of tens of thousands of Australians because of the threat the weapons posed to all people.

"We are clearly in the most dangerous situation that we have been in in human history," he said.

Australia would be taking a high profile in international forums to push for a more peaceful world, he said.

The Federal Government would apply pressure in the United Nations General Assembly for a nuclear test-ban treaty to operate for all time.

Many of the major Powers did not want to act yet and he admitted that the road ahead was difficult.

Mr Butler warned that Australia was worried that steps to control the spread of nuclear arms could stall.

This could cause the non-proliferation treaty, due for review in 18 months, to fall apart and five or seven current signatories might

get nuclear weapons.

Other matters Australia intended to pursue included seeking to restrict the nuclear space race and the growth of horrendous chemical weapons, and pressing for a nuclear-free zone in the south-west Pacific.

"One of our major objectives is to get the French to stop testing weapons in our back yard," Mr Butler said.

HAYDEN SEES ONLY 'PATCHY' SUPPORT FOR PACIFIC N-FREE ZONE

Assessment of Australian Position

Melborne THE AGE in English 24 Aug 83 p 3

[Article by Kate Le]

[Text]

CANBERRA. — Support for the Government's policy of a nuclear-free zone in the South Pacific was patchy and any agreement on the proposal was a long way off, the Minister for Foreign Affairs, Mr Hayden, said yesterday.

The proposal for such a zone will be discussed at the 14th South Pacific Forum, which meets in Canberra next week. Member countries have been considering the establishment of a nuclear free zone in the region for more than eight years.

In his address to the forum's executive yesterday, Mr Hayden concentrated on economic relations between South Pacific countries. Later, in an interview with Radio Australia, he warned that it would take time for the forum to reach agreement on the nuclear issue.

"I would be less than candid if I didn't acknowledge the support is a bit patchy in a few areas. I'm not prepared to identify countries, I think that's up to them, but there's not unanimous support for the proposal, so there is work ahead of us," he said.

The countries attending next week's meeting will be asked to endorse two resolutions. The first prohibits the testing, manufacturing, and storing of nuclear weapons, and the other calls for dumping of nuclear waste in the Pacific to be banned.

The resolutions would have no effect unless the forum nations declared a nuclear-free zone in the South Pacific. ALP policy calls for the Labor Government to support a United Nations resolution aimed at banning all nuclear activities in the region.

Mr Hayden said: "If the forum nations decide they want to have applied a nuclear-free zone in areas where they have sovereign authority they can ensure that applies, that is preventing stockpiles and the production of nuclear weapons, the testing of them, the storage and disposal of waste product, and so on. That can be done very effectively."

Asked about the prospect of an international agreement, Mr Hayden was less optimistic. He warned that the negotiations leading to an agreement would take some time. "That's the nature of international negotiations. You've only got to see how many years it takes to get a signature on an international convention and then to get ratification after it, so I don't think we should hold our breath," he said.

Mr Hayden said he hoped Australia could make worthwhile progress at the forum meeting. The need for some form of international agreement was illustrated by recent reports of French testing in French Polynesia, an area not covered by the forum.

In his formal address to officials yesterday, Mr Hayden said Australia would have to move to a more open economy and would be aiming for active marketing arrangements particularly with Pacific countries.

He said the Government was committed to regional co-operation and closer relations. Mr Hayden also reminded delegates that Australia would not be responding to the French invitation to send witnesses to testing at Mururoa Atoll until forum leaders had been consulted.

The forum, which was established in 1972, comprises representatives of Australia, the Cook Islands, the Federated States of Micronesia, Fiji, Nauru, New Zealand, Papua New Guinea, the Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa.

Papua New Guinea Backing

Melbourne THE AGE in English 24 Aug 83 p 7

[Text]

PORT MORESBY, 23 Aug. — Papua New Guinea would back Australia's stand against French nuclear tests in the Pacific at next week's South Pacific Forum meeting in Canberra, a Government spokesman said today.

The spokesman said the Foreign Minister, Mr Namaliu, recently had called for a more militant approach to nuclear protest.

PNG is expected to urge Forum members to adopt a united approach to nuclear waste disposal. It also would voice its strong support for decolonisation of New Caledonia and for a definite timetable for that country's political independence from France, the spokesman said.

PNG believes that reorganisation of New Caledonia's legislative, administrative and land ownership systems and of its minerals and tourism industries would be fairer to the indigenous Kanaks by supporting and protecting their interests and culture.

PNG is expected to recognise that some improvements have been made in New Caledonia.

Meanwhile, the Prime Minister, Mr Somare, said he had decided to accept a French offer and send a scientist to the nuclear testing site at Mururoa Atoll.

—AAP

CSO: 5100/7501

BRIEFS

OPPOSITION TO NUCLEAR PLANT--The Australian Democrats will oppose any attempt to establish a nuclear power plant in Tasmania. The party's leader, Senator Chipp, said: "Recent reports indicate that Mr Gray (the Tasmanian Premier) has been in the United States investigating the possibility of getting a nuclear power plant to replace the Franklin dam, Mr Gray will have the biggest fight on his hands if he pursues this absurd option." [Text] [Sydney THE AUSTRALIAN in English 18 Aug 83 p 3]

CSO: 5100/7501

STARTUP OF EXPERIMENTAL REACTOR DISCUSSED

Prague RUBE PRAVO in Czech 24 Jun 83 p 5

[Article by Jaroslav Simek: "A Support for Nuclear Power Production"]

[Text] At the end of June, the LR-0 zero-power experimental light-water reactor will go into permanent operation in the largest institute of our scientific research base for nuclear power, the Institute of Nuclear Research in Rez near Prague. This is a device which can be used to simulate various situations and obtain detailed, precise information on processes in the core of VVER-type power reactors, which are the basic reactors for the construction of future electric power stations here and in other socialist countries.

The main technical problems of the construction of nuclear power stations have already been solved. Those which have been completed are operating reliably and performing their main mission. Nonetheless, because of the short time during which nuclear power stations have been in use, there is not yet sufficient knowledge and statistical information on various irregularities in their operation. And this is the area in which the new experimental reactor will have its effect. As Eng Miloslav Hron, CSc, deputy director for research at the Institute of Nuclear Research, explained to us, "Among other things, it will allow us to obtain important information on ways of further increasing the safety and reliability of nuclear power stations and of making their operations more economical. But our research will also give answers to many questions of the Czechoslovak machine building industry, which is successfully expanding production for nuclear power. In addition, it is obvious that we will be enriching the international cooperation of the socialist countries in this area."

Multifaceted Use

The technology is a multipurpose design. It makes it possible to carry out experiments not only with VVER-1000 cores, but also, after installation of a core insert, of VVER-440 cores as well. This insert will be prepared and started up this year. It is being readied by Skoda Plzen's Power Generation Machinery and the Institute of Nuclear Fuels in Prague-Zbraslav. The design makes use of four Czechoslovak inventions.

For the long term, experiments planned for the LB-0 reactor involve the preparation of promising VVER-type cores not only for new power stations, but also for heat stations. For realistic plans are being made for nuclear power stations to provide not only sufficient electric energy, but also heat for homes and various branches of industry.

Half a Year Ahead of Time

The basis for the construction of the LB-0 reactor was created in 1975 as part of the assignment on Research and Experimental Reactors in the state plan for development of science and technology. In 1976-1979, Československá Praha and Škoda Plzeň's Energetické strojírenství plant, in close cooperation with Soviet experts from the I. V. Kurchatov Institute of Nuclear Energy in Moscow, developed comprehensive technical and design documentation for the reactor. Simultaneously, the Hidroproje design office of the USSR State Committee for Atomic Energy designed a VVER-1000 experimental fuel cell. A similar task, but for a VVER-440, was assigned to the Institute of Nuclear Fuels in Zbraslav. A contract between the Skidaxport PZO [Foreign trade organization] and the Soviet Union's Atomenergoprom for the importation of fuel inserts for the LB-0 reactor was concluded by the two partners at the International General Engineering Fair in Brno in September 1979.

The installation of the process equipment was completed last August, and the reactor first went critical on 19 December 1982. An important role in the last phase of construction of the reactor was played by joint socialist pledges to accelerate the entire project and present it for permanent operation half a year ahead of time, by July 1983. Under the sponsorship of the Central Bohemian and West Bohemian Krai CPCZ committees, this pledge was undertaken in honor of the 10th Trade Union Congress by the working collective of the Institute of Nuclear Research in Rez and the equipment suppliers of Škoda Plzeň's Energetické strojírenství plant. The participating organizations succeeded in creating conditions which in particular made it possible to avoid slippages and assured high-quality work.

Several measures considerably strengthened the installation capacities on site. All work was managed in accordance with a precise schedule.

But the Work Has Not Ended

The plans for comprehensive testing, physical startup, test operation, and the first stage of research work on the reactor, too, were ready on time and were of the required quality. The same can be said of the working up and discussion of the complete safety and operating documentation.

Josef Bartos, Ctr. head of the department of experimental reactor physics, confirmed that "We now can state that the reactor is ready in all respects for the beginning of permanent operation and is one

of the most important installations for research in the physics of VVER-type power reactors. But efforts to improve it will continue. In addition to the insertable 440-type core, this year we will also put a mockup for studying radiation stress on reactor pressure vessels into operation."

Another stage in the long-term cooperation between Czechoslovak and the Soviet researchers, technicians and workmen is reaching its culmination. Even though the production of electrical energy in nuclear power stations in this republic is in its infancy, we already have a tradition in using the energy of the atom. This was another reason why the decision was made to build the LR-0 experimental light-water reactor in Czechoslovakia, where it is already beginning to carry out all planned assignments.

3480

CSO: 5100/3033

BRIEFS

BRAZILIAN-VENEZUELAN NUCLEAR ENERGY COOPERATION--Venezuela and Brazil will soon sign a cooperation agreement in the area of nuclear energy for peaceful uses as was announced in Caracas by Rex Nazare, that country's CNEN (National Nuclear Energy Commission) chairman. Under the agreement, the Brazilian and Venezuelan governments will promote cooperation in the research on and application of nuclear energy for peaceful uses and will facilitate the accomplishment of joint projects. Nazare announced that the agreement will be carried out and coordinated by the appropriate Brazilian institutions in the area of the peaceful uses of atomic energy and by the Venezuelan agency, the CONADIN (National Council for the Development of the Nuclear Industry). "The agreement in particular will spell out the areas of scientific-technical cooperation and efforts will basically be aimed at an exchange of information in the field of radiological protection, especially individual dosimetry and calibration of equipment used in therapy," he pointed out. The Rio de Janeiro official indicated that Venezuela will be able to use the selective information dissemination services provided by the CIN (Nuclear Information Center) of Brazil as a part of the final implementation, in Venezuela, of the automated system of nuclear information. CONADIN Executive Secretary Julio Cesar Pineda in turn announced that Venezuela signed a basic technical cooperation agreement with Brazil through which both countries established cooperation relations, specifically in the area of personnel training. He added that two CONADIN officials are currently in Brazil, talking to the CIN about radiological safety. [Text] [Caracas EL NACIONAL in Spanish 31 Aug 83 p C-2] 5058

CSO: 5100/2093

NUCLEAR COOPERATION WITH CHILE WELCOMED

Buenos Aires LA NACION in Spanish 7 Sep 83 p 8

[Editorial: "Nuclear Cooperation with Chile"]

[Text] Ratification of the nuclear cooperation agreement with Chile takes on special significance in the context of current relations with that country. The agreement, in itself, approaches the matter in terms of the "peaceful uses" of atomic energy. But it is also obvious that such a delicate strategic issue requires a deep conviction, of the highest political order, regarding the procedures and possibilities for cooperation, motivated and governed by the desire for peace among nations.

Thus this consideration also includes the value of the good auspices which can influence, now and with a view to the future, the focus of Argentine-Chilean relations.

A few days ago in these columns, we praised the initiative of both countries' political sectors to promote the formulation of a general peace agreement.

This needs to be mentioned in order to precisely define certain features.

The idea of a peace agreement should not be attributed exclusively to the contingencies of the ongoing southern dispute. Moreover, it would be superfluous to believe that, under the terms of an arbitrated settlement, the two countries have formally agreed not to resort to the use of force. But it is also clear that civilian concern for maintaining peace is a response to the anxiety caused by events capable of disrupting peace.

In this sense, ratification of the nuclear agreement in the present circumstances, because of the considerations which we mentioned initially, should be interpreted as an appropriate expression of governmental judgment.

In any case, beyond occasional considerations, there is the obviousness of the presumable benefits of a firm policy of peace between Argentina and Chile, based on a clear awareness which will eliminate shocks and gloomy apprehension.

The starting point for this will lie in an absolute clarification of the confrontational issues which we wish to place under the mantle of peace, mainly territorial

issues. This means settling existing disputes and precisely defining, for the same purpose, as many as could be presumed, of whatever nature.

It is therefore imperative, as the Chilean representative noted in signing the recent agreement, to deal with joint issues candidly and sincerely.

11915

CSO: 5100/2092

CASTRO MADERO DISCUSSES NUCLEAR POLICY

Comments on Weapons Capability

Buenos Aires LA PRENSA in Spanish 21 Aug 83 p 3

[Text] The chairman of the National Atomic Energy Commission, Vice Admiral Carlos Castro Madero, has acknowledged that Argentina has the capability to produce nuclear weapons, but explained that as a result of the system of "international safeguards," to which the Atucha plant is subject, that possibility does not exist.

Castro Madero explained that Argentina has a "pilot plant for reprocessing" uranium, from which plutonium can be obtained, the basic component for the construction of nuclear weapons. He noted that more plutonium can be obtained from a process using heavy water.

When asked whether it is possible that Argentina would build nuclear weapons with plutonium obtained by the enriched uranium process, Castro Madero answered that "it depends, because the plutonium which could be extracted would only come from the Atucha reactors, which are subject to safeguards."

In statements to Radio Continental, Castro Madero added that "the reprocessed fuel elements and the plutonium produced are also subject to safeguards."

He emphasized that "the Atucha plant is not subject to safeguards, but the reactors are, for although we use material produced abroad, all of it is subject to safeguards."

Difference

Castro Madero added that "it is agreed that everything received from abroad is subject to international safeguards, although it is agreed that whatever is produced with our own technology is not subject to such safeguards."

"Therefore," he explained, "the matter of safeguards has nothing to do with the Argentine position of not signing the Tlatelolco Nuclear Nonproliferation Treaty."

He added that when a country submits to safeguard agreements through the International Atomic Energy Agency (IAEA), "it has to be ready, when the time for inspection arrives, to prove that even the last gram of heavy water is being used for peaceful purposes."

Submarine

Asked about the feasibility of building a nuclear-powered submarine, Castro Madero said that such a vessel "does not require heavy water, only a compact reactor using enriched uranium."

"I believe that in the event the project should be implemented, it would have to be based on a process using enriched uranium," the official said, and added that "a theoretical study is being made and it will be left up to the future government to decide whether or not it will be possible to go ahead with it."

Positive Change

Finally, Castro Madero said that he considered U.S. authorization for Germany to sell 143 tons of heavy water to Argentina "a very positive change."

The U.S. Government has authorized the sale of heavy water, which is the property of the Germans, but the operation requires the approval of the United States, since it was originally produced in that country.

The decision of the Department of Energy indicates a complete change in the nuclear supply policy regarding Argentina as a result of the latter's failure to sign the Tlatelolco Treaty.

Cost

Castro Madero corrected the cost of the heavy water for Argentina, explaining that the first 38 tons purchased will mean an expenditure of approximately \$8 million.

He added that should the decision be made to purchase the remaining 105 tons, Argentina will have to spend \$22 million more.

Previous reports cited a cost of \$100 million, which "is not correct," Castro Madero stated.

He reiterated that in 1985, Argentina will be capable of producing about 200 tons of heavy water.

Expresses Concern Over Program

Buenos Aires LA NACION in Spanish 11 Sep 83 p 12

[Text] Bahia Blanca--"Such a decision could greatly harm the Argentine nuclear plan." The chairman of the National Atomic Energy Commission (CNEA), Vice Admiral (retired) Carlos Castro Madero, used these words to express his deep concern over the possibility of nuclear power plants being withdrawn from the CNEA's jurisdiction during the country's next constitutional stage.

Vice Admiral Castro Madero made this statement after expressing his views on aspects of the nuclear plan to navy officers at the Puerto Belgrano Naval Base.

Radical Plan

The plan to remove nuclear power plants from the CNEA's sphere of influence appears in documents concerning the energy policy which the Radical Civic Union would implement if it were victorious in the elections of 30 October.

Continuity

The CNEA's chairman also rejected claims that the Argentine nuclear plan is too large and expressed his conviction that "although restricted by economic problems, it will continue to go forward beyond January 1984."

Heavy Water

Castro Maderno acknowledged that because of the budget cuts ordered in recent years, the heavy water plant being built at Arroyito, Neuquen, will go into operation in late 1985 instead of next year. Regarding the U.S. Government's decision authorizing the sale of heavy water of German origin to Argentina, he affirmed that it is a gesture which "to some extent confirms the rationality and clarity of our nuclear policy." He added that that purchase will not have further implications but will enable the country to have a reserve of heavy water, providing it with security against possible losses due to breakdowns of nuclear power plants.

11915

CSO: 5100/2092

ARGENTINA

CASTRO MADERO ON STATE OF NUCLEAR SUBMARINE PROJECT

SAN PAULO O ESTADO DE SAN PAULO In Portuguese 11 Sep 83 p 16

[Text] Buenos Aires--"We are conducting studies on an atomic engine to be put into the submarines we are building. Within a year we will be in a position to conduct the first tests but it will take us another between 6 and 8 years to get an operational submarine," O ESTADO was told by Adm Carlos Castro Madero, chairman of the CNEA (National Atomic Energy Commission).

Madero admitted that "the decision to go ahead with the project was made after the Malvinas War. We asked the International Atomic Agency to 'condemn' the use of nuclear submarines in the Malvinas Islands but the leading countries--the United States, Great Britain, and France--and the moderate nations of Europe, such as Sweden, Holland, Italy, etc., decided that nuclear power for submarines is not to be condemned. For this reason, Argentina, which was attacked by a nuclear submarine--the 'Conqueror,' which sank the cruiser 'Belgrano'--decided to plan a nuclear engine for itself."

The admiral wanted to stress that there is no legal limit, nor are there any international commitments to prevent Argentina from pushing the project: "The plan at any rate will have to be approved before its execution is decided."

Questioned as to the recent purchase of heavy water from West Germany, Castro Madero replied: "A German firm offered us 143 tons of heavy water already used in reactors which is irradiated. We decided to purchase 38 tons at a price of \$8.1 million and we signed a purchasing option for the remaining 105 tons. This material is to be used in forming a security stockpile and it is to replace that which is lost each year in the two power plants which are now operating, that is, Atucha I and Embalse."

The two power plants require 7.2 tons of heavy water to be replaced annually so that the purchase that was transacted will perfectly cover the normal heavy water supply needs until production is started at the Argentine manufacturing plant at the end of 1985.

Problems

There are some political problems connected with the purchase. The heavy water sold by West Germany is of United States origin. It was necessary to get United

States approval for delivery to Argentina. Argentina's nuclear policy conflicts with that of the United States. "United States authorization can be interpreted as a gesture by that country to our administration since Washington could have refrained from giving authorization for this transfer," the admiral said. "I do not know whether there was any interference by Great Britain--that would not have any relevance for us in this case. At any rate, there is a legal limitation in the purchasing contract--the heavy water cannot be used for the production of atomic weapons. The purchasing contract therefore prevents its use in so-called peaceful explosions as well as in military explosions."

Castro Mazero believes that the seller country was also influenced by the purchase of 5 tons of heavy water from the Soviet Union last year. With that purchase, Argentina demonstrated its determination to supply itself with the nuclear material it needs even if it has to go to the socialist bloc--an initiative which displeased the Western leaders. The Argentine nuclear plan involves a very significant development framework which also constituted a factor in favor of United States authorization. One of the heavy-water plants is already under construction.

5032

Case: 5100/2094

ANGRA-I COSTS REACH \$1.18 BILLION; OPERATIONS TO BEGIN

Quadruple Original Cost

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 13 Sep 83 p 35

[Text] Rio--The Angra-I nuclear plant is already costing the country \$1.18 billion, 296 percent more than the original budget of \$300 million because between its construction and entrance into operations, which has not yet occurred, there have been 11 years of problems without definitive solution.

After announcing the new costs of Angra-I yesterday in Rio, following a lecture given to the students of the War College (ESG) on the development of nuclear energy in Brazil, the president of Furnas, Licio Seabra, admitted that at the present time there is a surplus of 1 million kilowatts of energy in the Southeast, which consumes 70 percent of the energy produced in the country, precisely the region to be serviced by the Angra-I atomic plant.

Licio Seabra revealed also that each of the other two nuclear plants under construction--Angra-II and III--had their costs estimated last June at \$3.51 billion. In the opinion of Licio Seabra, besides the effects of inflation, the investment costs of Angra-I were affected by some factors such as: pioneering the undertaking in the country together with a program of assimilation of technology; unforeseen circumstances in construction activities and in the behavior of equipment in the commissioning phase; imprecision and maladjustment of the management model; and restrictions of expenditures.

New Tests

After several attempts to enter into commercial operation, Angra-I will begin a new period of tests that will last until November of this year, when the nuclear plant should be operating at 100 percent power (626 MW), according to Licio Seabra. He said that he cannot guarantee anything, especially after so many failures, but asserted that the Westinghouse technicians have left the steam generators of the unit in condition to operate without the previous difficulties.

The president of Furnas explained that the level of national participation in Angra-I is 10 percent in terms of equipment and should be around 5 percent in terms of engineering but despite those not very impressive figures, the construction of the nuclear plant brought the country positive results.

Regarding the reliability of the plant, Licinio Seabra said that its equipment will be subjected to 100-hour tests at full power and if everything goes well, Westinghouse will guarantee the operation of the unit for 1 year, as required by the contract. The moment Angra-I goes into operation next week, even at lower power (10 percent and in tests), an emergency plan will go into effect to protect the population within a radius of not less than 20 kilometers from the plant in the case of damage that may risk human life, such as abnormal rates of radioactivity.

The Debt

Licinio Seabra added that Furnas' long-term debt is \$5.5 billion of which \$2.6 billion is in foreign currency and the remainder is in equivalent cruzeiros. This year, Furnas will have to pay \$250 million service on the foreign currency debt through the Brazilian Electric Power Stations Corporation (ELETROBRAS), most of it being interest. Angra-I accounts for \$1.18 billion of the total foreign currency loan, according to Licinio Seabra. But he could not explain how the payment of the foreign currency debt by ELETROBRAS is being processed in terms of the exchange control being exercised by the Central Bank. The debt to contractors and suppliers in the country totals 15 billion cruzeiros.

Operation in October or November

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 Sep 83 p 24

[Excerpt] Mines and Energy Minister Cesar Cals told the Brazilian News Company in Fortaleza yesterday that the Angra-I nuclear plant should go into commercial operation next October or November. He added that work on Angra-II has already been begun and that the site-bed of the project for a third plant is beginning to be constructed. He declared that his ministry will not begin the construction of new projects until 1985 inasmuch as the Brazilian Nuclear Corporation (NUCLEBRAS) project schedule has been revised to provide continuity for the projects already begun and intended exclusively for the assimilation of nuclear technology.

8711

CSO: 5100/2090

BRAZIL

ANGRA-I BEGINS CRITICAL PHASE; FULL POWER BY END OF YEAR

Sao Paulo D ESTADO DE SAO PAULO in Portuguese 23 Sep 83 p 24

(Text) Rio--The Angra-I reactor yesterday began its critical phase (when the fission process is begun) and should achieve 2 percent of its nominal power of 625 megawatts today, gradually increasing that power until it is operating at full capacity by the end of the year, according to Furnas Electric Power Stations.

The entrance into operation of Angra-I is being followed by the experts and operators of Westinghouse, who made the repairs to the two preheaters of the reactor's steam generating system. As is known, the Angra-I reactor presented a manufacturing defect which caused a delay of more than a year and a half for entrance into commercial operation.

This problem caused a loss estimated by Furnas at more than \$200 million in new financial charges on loans taken abroad. The insurance sector does not insure the nuclear industry for loss of profits, thus there is no possibility of Furnas being indemnified for the loss.

In addition to the repairs required in the steam generating system, Furnas also had problems with the two diesel generators of the emergency system, which are also not manufactured in Brazil. Since a nuclear plant must have permanent electric power or risk a meltdown of the reactor core, the emergency diesel generators are of fundamental importance and the National Nuclear Energy Commission (CNEN) does not permit the operation of the plant as long as those generators are not in perfect operating condition.

8711

CSO: 5100/2000

BRAZIL

NUCLEAR SUBMARINE TO BE BUILT IN 1990'S

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 24 Sep 83 p 6

(Text) Navy Minister Admiral Maximiano da Fonseca announced in Rio yesterday that Brazil is going to begin the construction of its first atomic submarine in the early nineties. This is the first time that he has set a specific period for the construction of a nuclear-propulsion submarine, considered essential by Brazilian strategists.

Maximiano da Fonseca emphasized the need for the current naval reequipping plan to continue normally without any delays so that the goal of construction of the atomic submarine may be achieved, giving Brazil a naval power with greater capability in accordance with the basic needs of modern war.

The information made public by the minister was considered of the greatest importance by the military strategists consulted by O ESTADO. They stressed the need for Brazil to have a nuclear-propulsion submarine, without which the navy would be in a disadvantageous position in the future to operate in a modern conflict.

According to Admiral Paulo de Bonoso Duarte Pinto, commander of naval operations of Brazil and member of the Admiralty, "a nuclear submarine for the navy would mean keeping up with progress and having appropriate means for naval power. The efficiency of a submarine was demonstrated recently during the Malvinas conflict. A nuclear submarine is a confirmation of the expression of naval power; it is a necessary type of warship."

In the opinion of Brigadier Octavio Moreira Lima, commandant general of support of the Brazilian Air Force (FAB) and member of the FAB High Command, "a nuclear submarine is essential. I would compare the importance of the atomic submarine to that of supersonic planes for the air force. An atomic submarine today represents the most important military means of a modern navy. It is a very important and very necessary technological advance for the future. A navy without an atomic submarine is not a complete navy."

8711
CSO: 5100/2000

BRAZIL

BRIEFS

ANGRA-1 NUCLEAR PLANT GAS LEAK--Rio de Janeiro, 11 Oct (EFE)--A gas leak detected in an auxiliary system has forced a halt to the "ANGRA-1" nuclear power plant's press bureau has reported. The accident was due to the failure of a steam line connector for generating power. The accident caused no explosions since all the steam released remained in a pressurized container, the same sources reported. In order to repair the leak in the auxiliary system, the power plant had to be depressurized and disconnected at a time when it was operating at less than 1 percent of its rated capacity. The "ANGRA-1" nuclear power plant is still at an experimental stage, awaiting the Brazilian Government's decision, expected before yearend, to start normal operations. [Text] [PY11]615 Madrid EFE in Spanish 1231 GMT 11 Oct 83]

FOR FOR LOAN--Brasilia--The president of the Brazilian Nuclear Corporation (NUCLEBRAS), Dario Gomes, will leave for the Federal Republic of Germany on 30 September to sign a loan contract for \$67 million in Frankfurt with a consortium of German banks, headed by the Deutsche Bank. Dario Gomes revealed also that during his stay in Germany, he is going to initiate negotiations for the third and last loan by NUCLEBRAS this year, in excess of \$80 million. With those two loans, NUCLEBRAS will complete the ceiling of \$247 million established for the company's foreign loans by the Special Secretariat for Control of State Companies (SEST). The first loan, also contracted with a consortium of German banks, headed by the Dresdner Bank, was for \$80 million. /Sao Paulo O ESTADO DE SAO PAULO in Portuguese 20 Sep 83 p 32/

4711

CRS: 5100/2000

PROBLEMS IN NUCLEAR DEVELOPMENT PROGRAM DESCRIBED

Lima OIGA In Spanish 29 Aug 83 pp 17-18

[Article by Gerardo Barraza: "Our Nuclear Program Is in Danger"]

[Text] The advanced civil works of the Peruvian Nuclear Research Center had to be suspended last week when the Peruvian Government failed to pay the first instalment --approximately \$5 million--of the agreement signed with its Argentine counterpart for their construction. Directors of the Peruvian Nuclear Energy Institute (IPEN) had to take emergency measures to make it possible to continue the delicate mechanical-electrical works. "The country's nuclear development"--the institute's chairman, Peruvian Army General (retired) Juan Barrera Delgado, said last week when interviewed by OIGA--"is going through a critical period; we are striving to fulfill the plans, but if this instalment is not paid soon, we will have to face up to cancellation of the contract and payment of the fines which it entails."

Moreover, about 20 nuclear research studies, of prime importance for the country, would also have to be suspended if the budget obligations facing the IPEN, and which are seriously affecting the stability of its scientific staff, are not met soon.

Since 1975, those Peruvian nuclear scientists have been studying the peaceful use of nuclear energy in fields such as agriculture, veterinary science, medicine and industry. The numerous experiments they are conducting include: "tagging" fertilizers with "radioactive tracers" such as phosphorus, making it possible to optimize the uses which plants make of soil nutrients. The scientists are also developing plants which are resistant to pests and environmental factors, and fruits, tubers and grain which remain in good condition even though stored under rather unfavorable conditions. To achieve this, vegetable species are irradiated with gamma radiation from cobalt isotopes without contaminating them, since--the scientists assure--the radiation penetrates the vegetables without the latter assimilating it.

In the field of medicine, the scientists are developing "radiopharmaceuticals" which, when injected into the patient, make it possible to detect his anatomical or physiological irregularities. Isotopes of iodine and technetium are used in such studies. In industry, scientists have conducted studies making it possible to quickly locate "leaks" in pipelines--including oil pipelines--by also using "tagged molecules" with isotopes of radioactive elements. These valuable experiments have been conducted at the institute's headquarters in La Victoria, using its minimal infrastructure and the operation, since 1978, of its zero-power reactor (RP-0),

which has proved to be ideal for these studies because of its extremely low power: 1 watt.

Logical development of the country's nuclear technology requires more scientific installations and the Nuclear Plan therefore considered constructing the Nuclear Research Center, starting the works--on the plains of Huarangal, district of Ica--in 1979, 90 percent of which has been completed. If current economic limitations are overcome, this center would be inaugurated in mid-1985 and will have a 10-MW [megawatt] (RP-10) research reactor as a basic and decisive tool for all its activities, which will permit greater specialization of our nuclear scientific and production of radioisotopes, which must currently be imported at a significant expenditure of foreign exchange.

This reactor will use uranium dioxide (UO_2) as a fuel, for which IPEN has conducted radiometric prospecting operations in the country's southern departments, locating very interesting anomalous zones, especially in Macusani, Puno, where proven reserves of 400 to 500 tons of metallic uranium have thus far been established.

In addition, facilities for various laboratories and workshops to complement the reactor are being built at IPEN, as well as the installations of the National Center for Radiological Protection and Nuclear Safety and the Radioisotope Production Plant.

Also considered in the Nuclear Plan is the risk involved in developing this technology. General Barreda stated in this regard: "The military applications of atomic energy are causing justified fear among peoples. IPEN's activities are exclusively aimed at the peaceful uses of nuclear energy. However, in order to assure efficient research without major risk, I can assure you that we have taken more than sufficient safety measures." He mentioned, for example, that in many countries, reactors of the type to be installed in Huarangal are operated at universities located in cities. "Here the reactor will be installed 28 kilometers from Lima and based on studies which we have conducted, it will not endanger the local ecological balance," the general stressed.

All such IPEN research and planning studies could be suspended, with the loss of the money and effort already invested, if the aforementioned instalment is not paid. The advanced installations of the Nuclear Research Center would thus become merely "white elephants" and many Peruvian nuclear scientists would have to emigrate to other countries, which would thus profit from the Peruvian Government's investment.

But General Barreda is still optimistic: "If the government manages to pay the instalment and provides us with minimal support of our reduced budget, we are sure that our Nuclear Plan will be saved to the benefit of the country's scientific development."

11915

CSO: 5100/2096

DAE RULES OUT EARLY SWITCH TO LARGE NUCLEAR PLANTS

Bombay THE TIMES OF INDIA in English 12 Sep 83 p 9

[Text] New Delhi, September 11.

For the next two decades, India will continue to build nuclear power stations of 235-MW capacity, even though all over the world nuclear power unit sizes are in the 900-1,300 MW range.

According to the Department of Atomic Energy, an immediate switchover to 500 MW pressurised heavy water reactor units is not feasible due to the need to build up capabilities within the country for the manufacture of larger components.

Moreover, even some of the 200-MW nuclear units have had difficulties arising from grid inadequacies and this should answer the question why India is sticking to the present unit size in the nuclear power industry.

Three scientific papers to be discussed by the forthcoming world energy conference in New Delhi have touched upon the issue of optimum size of a nuclear power plant for developing countries.

The small and medium sizes of nuclear power plants have been considered appropriate for developing countries and it has been observed that since these are not available, the programme in developing countries has suffered.

Heavy Water Reactor

Only India is building the pressurised heavy water reactor of 200-MW size. But it is not offering it for export. Some developed countries have now turned their attention to the export potential of small units.

India's unique position will be lost by the time it equips itself to offer this technology, which is more relevant for fellow developing countries with small and fragmented transmission grids.

These countries do not generally get on turn-key basis plants smaller than about 600 MW. Only the Soviet Union has started manufacturing units in the size of 440-MW for export purposes.

In fact, the Soviet Union earlier offered a large nuclear power plant to India and when it was pointed out that integration of such a unit with the power grid would be a problem, the offer was revised to include a smaller unit.

During the past five years, three countries have started nuclear power generation with the Soviet 440-MW units. Two have their first plants of this type under construction and one is negotiating the order for the first plant of this type.

It has been stated that a more general availability of smaller than 600-MW nuclear power plants could mean a faster introduction of nuclear power in developing countries.

According to an estimate by the International Atomic Energy Agency, if 200-MW nuclear power plants were available and economically competitive, several countries could benefit from nuclear power plants some 15 to 20 years earlier than if they had to wait for the time they could use 600-MW plants.

One drawback of the small nuclear power plants is that these are not competitive with coal-fired plants, according to an estimate by IAEA. But even the small nuclear power plants have an edge over oil-fired power units.

It is not the Soviet Union alone that is trying to get export orders. West Germany and some other nuclear plant exporting countries have begun to develop reactors in the 200-MW-400 MW range, especially tailored to the requirements of developing countries.

CSO: 5100/7000

PAPER WELCOMES U.S. DECISION ON NUCLEAR PLANT

MB271817 Pretoria DIE TRANSVALER in Afrikaans 22 Sep 83 p 12

[Editorial: "America and Koeberg"]

[Text] The decision by the American Government to allow a prominent company to provide technical equipment and maintenance at South Africa's first nuclear power station arouses interest because of the particular motivation involved.

By far the most important is that the Reagan administration applies itself to this type of occasion in a sober-minded manner and refuses outright to be intimidated by radical pressure groups when ulterior political motives come into play, as was the case with his predecessor Jimmy Carter.

This is not to say that leftist Democratic legislators will not haul the administration over the coals because of its decision, not to mention the reaction of the Reverend Jesse Jackson and his rowdy followers.

The State Department sees the application by Westinghouse Corporation to keep Koeberg going as a simple business transaction, and not as an attempt to provide South Africa with classified nuclear technology. In any case we would cope in that regard.

But there is also another reason for the Reagan administration's approval of the application. It is that the kind of equipment and maintenance needed at Koeberg is undoubtedly available elsewhere. This is because South Africa is in the big league as far as nuclear research and the peaceful application of nuclear power is concerned.

So boycotting us will serve no purpose. In addition, we have the money to pay for foreign assistance. If Westinghouse does not get the lucrative Koeberg contract, this plum will simply land in someone else's pocket.

It is encouraging that the people sitting in the White House at present view ties with South Africa so level-headedly, and we realize once again the great difference in approach between a Republican and a Democratic administration.

CSO: 5100/3

SOUTH AFRICA

OFFICIAL DISCUSSES NUCLEAR POWER POLICY, SAFETY

Johannesburg BEELD in Afrikaans 26 Aug 83 p 14

[Letter to the editor by A.S. Du T. Sonnekus: "Nuclear Power: 'Dangers' in Perspective"]

[Text] A. S. Du T. Sonnekus, Public Relations Officer, Atomic Energy Corporation of South Africa Limited, Pretoria, writes:

In BEELD (11 August), Mr Gerhardus D. Greyvensteyn of Pretoria writes as if the dangers of nuclear power are being disavowed.

However, few employers of a technology are as conscious of the possible adverse consequences of their technology as are nuclear scientists. The use of it is subject to the strictest safety measures.

In South Africa, the Atomic Energy Corporation of South Africa Limited (AEC) controls safety aspects and the licensing of nuclear installations, and the corporation's powers and duties are described in the Nuclear Energy Act of 1982.

Distinction

An Independent Council for Nuclear Safety has the final say on the issuance of a license. In no way is the AEC concealing the "negative side of nuclear energy," as Mr Greyvensteyn refers to the "dangers" of nuclear technology.

However, a distinction must be made between the peaceful use of nuclear technology to the benefit of man and his environment--and subject to proper supervision and safety measures--and the alarming consequences of possible war-time use.

The fear of nuclear technology revolves around the term "radiation." Unfortunately, there exists a total misconception of this subject.

Since 1928, safe radiation limits have been set by the ICRP (International Committee for Radiation Protection). Today, more is known about the effects of radioactivity than about that of any other toxic matter.

Koeberg

Every person is exposed each and every day to natural radioactivity from his immediate surroundings. The radiation level is measured in millirems, and in Cape Town the population has been exposed to a level of between 50 and 150 millirems per year over the past three or more centuries on account of natural radioactivity in the soil.

During normal activity at the Koeberg power station, a slight degree of radioactivity will be released. The AEK has specified that no one outside the Koeberg premises may be exposed to a radiation level of more than 25 millirems per year above that of the natural surroundings. This level was determined after scientific studies were carried out over a period of 14 years on wind patterns, meteorology, inversion conditions and seasonal fluctuations.

Eskom (Electricity Supply Commission) has attempted to bring that level down to 11 millirems.

Accident

It is interesting that the human body has a radiation level of approximately 17 millirems on account of radioactive potassium-40 in the body itself. Thus, being very close to another person for a lifetime exposes one to a higher level of radiation than does the immediate surroundings of a nuclear power station such as Koeberg!

It is true that accidents or incidents can indeed happen. However, it is impossible that an accident or incident at Koeberg could wipe Cape Town off the map. The possibility of accidents is extremely slim, yet provisions have been made in the safety planning and emergency procedures to head off such an extremely unlikely event.

Man must always make choices. We know that coal and oil are dwindling sources of fuel for generating energy. At the same time, there is not yet any indication that other natural sources such as the sun, wind, ocean tides and biological materials can serve economically as replacements.

Nuclear energy as the generating power for electricity is presently the only economically feasible alternative, as has been shown in numerous nations of the world, even behind the Iron Curtain. At the same time, it is a clean source which does not pollute the environment.

If the practice of traveling by car were subject to the same safety norms as those applied to nuclear energy, a total ban on motor transportation would have to be put into effect. But the ordinary man accepts the nearly 10,000 deaths per year on our roads as a risk of modern life. Let us thus put these "dangers" into perspective.

12271

CSO: 5100/57

NUCLEAR SCIENTIST RAPS CRITICS OF DUMPING SITES

Johannesburg THE CITIZEN In English 23 Sep 83 p 12

[Text]

A TOP geologist and nuclear scientist yesterday hit back at mounting criticism and threats of action against the planned development of a dumping site for radioactive waste in the North Western Cape.

Dr Dennis Toens, geology department director of Nucor, said in Pretoria, South Africa would have to face the fact that nuclear energy was here to stay.

Lecturing to students at Pretoria University Dr Toens said that the attacks on nuclear energy could do man no good.

"When the energy shortage becomes real, it will be the poor people of the world who will suffer most.

"And those who have delayed the development

of additional energy sources will have much to answer for in their misdirected efforts.

A renowned and recognised world authority on nuclear energy, Dr Toens said 25 countries were today operating 294 nuclear reactors and that by 1985 there would be 35 countries using nuclear power.

South Africa, with her vast reserves of uranium and coal, assumed an importance similar to that of the Middle East as a fuel source.

The Republic had the second-largest reserves of uranium and the fourth largest reserves of coal in the Western world. In 1980 she was the third largest producer of uranium after Canada and the US and the fifth largest producer of coal.

The Namaqualand site selected for nuclear waste disposal was, for various reasons — geologically, hydrologically and seismically in addition to population factors — one of the most suitable in the world.

Within a radius of 25 km the estimated population of the area was about 500 people.

Nucor was very mindful of its responsibility. In the light of public concern it, as a matter of policy, left no stone unturned in doing its duty to ensure the safe storage of nuclear waste.

"We live in a dynamic society which is moving away from the past where only a privileged few were allowed to share in growth," Dr Toens said.

HARMONY HOPES FOR URANIUM PROFIT TO STAY

Johannesburg RAND DAILY MAIL in English 23 Sep 83 p 17

[Article by Brendan Ryan]

[Text] **HARMONY** Gold Mining Company expects to continue profitable uranium operations in the year to end-June 1984 but the further outlook for uranium sales is uncertain.

"Unless selling prices improve considerably a tailing-off in profitability is forecast and the company will have to reassess its role as a uranium producer," chairman Mr D T "Daddy" Watt says in his annual review.

Harmony's revenue from sales of uranium, pyrite and sulphuric acid amounted to R50 216 000 (previous year R44 011 000) in the year to end-June equal to 10.6% of total revenue of R550 864 000.

Mr Watt comments the uranium spot price has risen month by month since November last year to reach \$23.25 a pound in June.

"The increase in the spot price was motivated initially by the prospect of the introduction of legislation in the United States regulating the importation of foreign uranium."

"The legislation was not enacted but the spot price continued to move up as some surplus stockpiles were liquidated and as the cost of carrying inventories dropped with the lowering of interest rates in the United States."

"Some consumers have reportedly commenced a pro-

cess of building up inventories in anticipation of a major price rise in the long-term."

"There has however been no real increase in consumption and current forecasts are that production will remain in excess of consumption for many years."

"It is therefore certain that price trends in the immediate future will be dictated primarily by financial considerations and will be very sensitive to changes in interest rates in the US," Mr Watt says.

Turning to prospects Mr Watt expects Harmony's total dividend for the year to end-June 1984 could be about 260c a share.

An interim of 130c has already been declared.

Provision are that unit production costs are held to an increase of about 8%, the average gold price received is about R16 000 a kg and the yield estimate of about 4.2g/t is maintained.

Harmony's unit working costs rose by 14.2% in 1982 which Mr Watt says is an alarming increase.

He comments continued increases on the scale recently experienced cannot be absorbed by low-grade mines such as Harmony without serious effects on profits.

"The authorities are maintaining policies designed to control the rate of inflation

but experience elsewhere in the world has shown that these policies take some time to make any real impact on the problem."

"It is of concern that there may well be social and structural factors in the South African economy which will preclude the full application of the necessary control factors for the length of time that may be required."

"In addition the consequences of the severe drought now being experienced in South Africa will certainly introduce further upward pressures on prices and thus ultimately on costs in the mining industry," Mr Watt says.

The annual report reveals Harmony's application for a mining lease over the farm Vermeulenskraal 223 has been postponed until additional exploration work has been carried out.

Harmony's option to continue exploration work on the farm has been extended to March 12, 1984.

Mr Watt said the Department of Mineral and Energy Affairs required additional information on the mine's application for a mining lease over the farm.

The information would be obtained through a development-end being tunnelled into the area from which further exploration work would be carried out.

DETAILS ON SIMULATED KOEBERG CATASTROPHE GIVEN

Port Elizabeth WEEKEND POST in English 17 Sep 83 p 15

[Article by John Scott: "Remember PEZ, PRP and Let Koeborg Blow!"]

[Text] THERE is no longer any need to worry about a nuclear accident at Koeborg, as long as you can remember which zone you live in.

Escom has mapped out a diagram showing, more or less, in which direction you should flee in the event of an emergency.

But the whole scheme could turn into a shambles, not to mention a traffic jam, unless householders act in unison with fellow members of their own zone.

This is probably why Escom has named its simulated catastrophe exercise next week "Operation Circus".

The inner-most zone is the power station site itself. Action taken within this zone, if anyone is still alive to take it, will not in any way affect the public, who will have problems of their own.

Next is the IEPZ, or Inner Emergency Planning Zone, within a radius of five kilometres of Koeborg. My only advice to people in this zone is get out of it before anything happens. If you wait until it does, it may be too late.

Third is the PEZ, or Plume Exposure Zone. It is possibly the most critically-important zone of all, extending to a radius of 16 kilometres and including

the whole of Atlantis, Melkbosstrand, Philadelphia, Van Riebeeckstrand and Duynfontein.

Everybody within Plume Exposure is required to find his own PRP, which is not an off-shoot of the Progs but stands for Personal Relocation Point.

The PRP (or FRP, for Family Relocation Point) should preferably be the home of relatives or friends outside the PEZ.

If, however, you cannot find a PRP/FRP or, in the panic of the moment, you are unable to reach it, the authorities, who think of everything, will accommodate you in an MCC, or Mass Care Centre (a nuclear emergency isn't cricket, hey).

The prudent will keep their cars permanently filled with petrol, to facilitate a Le Mans-style start to AP. Another Province.

And while you are arranging your PRP, why not at the same time make provisional arrangements with your farthest undertaker for your RIP, thus killing two birds with one Melt-Down (MD).

For another 34 kilometres beyond the PEZ is the CPZ, or Contingency Planning Zone. That includes Cape Town and the Peninsula. I am not too sure

what the million or more people in the CPZ are required to do, other than wait patiently for HFO, LOF and CG (Hair Fall-Out, Loss of Fertility and Cancerous Growths).

Finally, and it could be very final indeed, the IZ, or Ingestion Zone, extends an additional 30 kilometres beyond the CPZ.

A yachtsman sailing off Cape Point, for instance, could find himself ingested into the IZ at the time of emergency. His best bet would be to change tack immediately and set course for Prince Edward Island.

If, on the other hand, you are in the inland sector of the IZ, say half-way over Du Toit's Kloof, don't stop until you reach Worcester.

I intend compiling a glossary of nuclear emergency terms for those who still have difficulty distinguishing a PEZ from a PRP, and an MCC from an MD.

Among the terms that should also form part of every PEZ-person's vocabulary, for example, are CM, SFL, AC and NNM, which my little booklet will tell you stand for Contaminated Milk, Sterile Farm-land, Accidental Leakage and Neo-Natal Mortality Rate.

And oh, I forgot — OC. For Operation Circus.

BRIEFS

RADIATION FALLOUT MONITORS--CAPE TOWN--The city council here has decided to install two radiation monitors on Robben Island to check for any fallout from the Koeberg nuclear power station. The council statement, released at a press conference yesterday said the additional monitors had been recommended because of the "particular meteorology" affecting Cape Town. The chairman of the council's executive committee, Mr John Muir, said two winds could be blowing at the same time around Cape Town in different directions in different strata. It was believed an early warning system should be installed at Robben Island because of this. The Council will also take the initiative in ordering a supply of potassium iodate tablets--to be taken as a protective measure in the event of a release of radioactive iodine, the statement said--which would be made available to the public on request. This substance was the "only known antidote that will prevent radioactive iodine being taken up by the thyroid gland," Dr R. Googan, the medical officer of health, told the news conference. The tablets can be stored for five years and have to be taken two to three hours before exposure to radiation if they are to be effective. These decisions on emergency planning for Cape Town follow a meeting between a council delegation, local government officials and Dr J. de Villiers, director of the Atomic Energy Commission, the licensing agent for Koeberg. The press release said yesterday the council decided to install the Robben Island monitors itself, after Dr de Villiers refused to agree that they should be a licensing requirement for the power station. [Text] [East London DAILY DISPATCH in English 9 Sep 83 p 8]

WITS NUCLEAR ANALYZER--THE Nuclear Physics Research Unit at the University of the Witwatersrand has ordered a Canberra multichannel analyser from Protea PNI. This highly sophisticated instrument is known as the Canberra Series 90. It will be installed shortly, and be used in research and educational programmes. The Canberra Series 90 features a fully programmable colour graphic terminal, 64 K data channels with dual port, high speed random access memory which is user configurable, and touch screen for menu setup as well as spectra manipulation and specialised analysis. The system adapts to customer requirements by providing direct memory access of multiple collect interfaces, each capable of accommodating several front ends simultaneously. The system has a complete range of computer configurations to meet almost any application in the fields of research. It can be used in gamma spectroscopy, X-ray analysis, whole body counting and similar analysis functions at high speed. With software available for applications such as germanium and sodium iodide

specting, neutron activation analysis, off-line dose calculation, GaAlmetry, primary coolant and water monitoring as well as X-ray analysis the unit can be used in most research and post graduate investigations conducted by students and personnel. The Canberra Series 90 multichannel analyser can also be used in investigations in the field of health and physics research as well as applied physics. It can be used in radio chemistry and medical applications as well as for non-nuclear operations or for particle sizing research and medical analysis if required. [Text] (Sahamansberg MINING WEEK in English 7 Sep 81 p 3)

NUCLEAR EVACUATION CONFERENCES--CAPE TOWN--Many people had misunderstood earlier statements about next week's emergency exercise at the Feshberg nuclear power station, an Iscor spokesman said here yesterday. The spokesman said in a statement Iscor wanted to clarify that the announcement concerning family re-location points, in the event of an emergency, was purely a personal measure to reassure people. There was no obligation on people to make arrangements with family members, as mass-care centres would be available in such an event, he said. The civil defence divisional council authorities had already deployed contingency plans in this regard, and medical care would be available at the centres, he said. [Text] (Sahamansberg THE CITIZEN in English 11 Sep 81 p 7)

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POLL SHOWING LARGE MAJORITY AGAINST NEW NUCLEAR PLANT KEPT SECRET

Helsinki HUFVUDSTADSBLADET In Swedish 30 Aug 83 p 12

[Article by Matti Osmo]

[Text] A Gallup poll that was conducted last spring but kept secret shows that the negative attitude toward nuclear power has definitely increased: two-thirds of the Finns oppose the construction of a fifth nuclear power plant.

Gallup also found that the attitude of men is distinctly negative. Among the political parties, opponents of nuclear power have increased in number, especially in the Conservative Party and the SKDL [Finnish People's Democratic League]. In the Center Party, three-fourths are opposed, and only among the Social Democrats has support remained unchanged.

Since 1982, the Industrial Power Company and the state-owned Imatran Voima have commissioned four Gallup polls to determine the Finnish attitude toward a fifth large nuclear power plant. The data from those polls were being kept secret, but they are being published in the latest issue of HYMY, which comes out this week.

At the Industrial Power Company, managing director Magnus von Bonsdorff says that the leak is "extremely annoying."

He says: "It is regrettable that matters which are under discussion should be made public. This requires a reaction on our part."

He declined to say anything about the Gallup results except that he is familiar with them and that they speak for themselves.

When people are opposed to something, important decisions affecting the country must be made in the greatest secrecy, says the magazine. And it mentions a number of secret calculations and applications that have come into the possession of its editors.

High-Level Brainwashing

A year ago, in 1982, Imatran Voima and Industrial Power began the so-called ITY Project, its purpose being to provide Finland with a large, 1,000-megawatt nuclear power plant.

The project was later given another name, as well: the fifth nuclear power plant would be built by the newly formed Fortum Oy Company, which is owned jointly by the two power companies.

The general negative opinion seems to have been the project's most serious enemy right from the start. The JTY Project's Information group was given a special budget of 2 million marks with which to influence Finnish views.

The campaign began with the brainwashing of influential people in important positions (politicians, government officials, and the press).

Since then, preparations for establishing the fifth nuclear power plant seem to have proceeded further than the companies want to admit publicly. The magazine article says that practically all the cabinet ministers have already been subjected to persuasion by the JTY project's leaders. KTM mentions Minister of Tax Pekkka Vennamo and Prime Minister Kalevi Sorsa as being definitely won over.

Press Muddled

If at some stage, despite everything, opposition by the citizens were to affect favorable preparations for a positive decision by the government--politicians do depend on the people's opinions to some extent even between elections--and if confidential information to selected journalists did not lead to perceptible results, there were also plans for a purely commercial information campaign.

earmarked for that purpose were 1.5 million marks. The money would be used for full-page advertisements in the following newspapers: HELSINGIN SANOMAT, AAMULEHTI, TUUSULAN SANOMAT, MYNTHYNTYLAHLADIT, IISI SUOMI, DEMARI, KANSAN KUTSUT, KIVIMIESKÄ, ILLA-SANOMAT, and the most important provincial newspapers.

Information would also be smuggled in to editors "through the back door" to make it appear more reliable.

The basic idea in the campaign would be that there is going to be a shortage of electricity in the 1990's and that a 1,000-megawatt nuclear power plant is therefore necessary. There was also the intention to tell how harmless nuclear power is and to say that nuclear waste would be shipped out of the country.

Misleading Information

These last-named statements seem convincing at first glance, but in fact they are partly misleading.

Concerning the shortage of electricity in the 1990's, there are as many opinions on that subject as there are participants in the debate. The problem of reactor waste has been solved only for Soviet reactors, and according to KTM, the latest documents show that at least part, if not all, of the waste from the large new nuclear power plant being planned would be buried in Finnish primary rock.

According to the ITI Project's secret reports, "a public debate without a specific project leads to better results"--which, freely translated, means a more positive climate for construction of the fifth nuclear power plant. And "if the project reached the point where a decision is to be made, (the negative) pressure will have been at least partially discharged."

The principle is well tested: people are allowed to discuss blurry issues until they are tired of the subject, then when the decision is actually made, the spirit has gone out of the debate.

Since This Autumn

It is clear from the reports that on 2 June 1983, the Industrial Power Company sent out a memo on behalf of both power companies saying that the decision must be made within a year. The large nuclear power plant would be ready to operate within 8 or 9 years after a positive decision in principle.

Inquiries concerning Vids will be sent out this fall to the Soviet Union, France, and Sweden. The Soviet Union will be asked to quote a price on one 1,000-megawatt plant and two plants of between 440 and 500 megawatts. France will be asked to bid on a 900-megawatt plant, and Sweden will be approached regarding the price of a 440-megawatt plant.

The uranium fuel would be bought from the country delivering the plant, as has been the rule up to now.

Actual construction is expected to take 6.5 years, and as building sites, the TVO and TVO have already jointly proposed to the government that the fifth nuclear power plant be built either in Olkiluoto or on Hastholm Island off the coast from Iivika. The two sites are described as equally acceptable in a letter to the Council of Ministers.

Opposed? 79 Percent

According to the third public opinion poll commissioned by the ITI Project--its results were stamped "strictly confidential"--the attitude toward nuclear power in general has become "increasingly negative."

Seventy-nine percent of the population is either partly or completely opposed to nuclear power, with 50 percent being unequivocally opposed.

The following observations also appear in the Gallup results:

"Opposition by young people has increased sharply."

"It is worth noting that the attitude of men is clearly more negative than it was in September 1982 or February 1983--half are now opposed."

"Support has collapsed among the political parties, especially the Center Party.... The Center Party's attitude has become thoroughly negative."

"As a whole, the negative attitude had clearly increased—two thirds are now opposed to a fifth nuclear power plant."

Managing director von Bonsdorff of the Industrial Power Company says that another poll was conducted last summer and that in his opinion, the attitude has now become slightly more positive.

11/19/68

DSU: 11/19/68

NEW LEGISLATION GOVERNING NUCLEAR PLANTS SOON TO TAKE EFFECT

Stockholm DAGENS NYHETER in Swedish 15 Sep 83 p 6

[Article by Ake Ekdahl]

{Text} After the end of this year nuclear power will be governed by new laws. At the same time the old condition law will be superceded. According to the new nuclear power legislation the power companies will be forced to present annual reports and to have annual examinations for continued operation permits. But the law cannot be used to stop nuclear power in 2010 as demanded by the popular vote and the political feud will continue over this issue.

The old condition law came about during the first Falldin government and it was meant to function as a prohibition law. Its target was the permit for the start of operations.

The nuclear power companies have to present conversion agreements for the spent fuel and show methods for "completely safe" storage of the radioactive waste.

The very moment when the Liberty Party government interpreted the law in such a way that it was possible to obtain permits for new reactors, the law was no longer useful. It was not able to stop nuclear power. Today leading members of the Center Party admit that the law was a failure in this regard.

The Social Democrats were all along against the condition law, mostly because it involves a commitment to the conversion of spent nuclear power fuel. Now the Minister of Energy Birgitta Dahl presents new nuclear power legislation that eliminates such commitment.

In order for the nuclear power companies to retain their operation permits they have to present research programs that lead to the best possible methods for the final storage of the waste.

This spring the nuclear power companies are seeking two new operation permits for reactors 11 and 12 in Forsmark and Oskarshamn. Then the power companies

Vattenfall and Sydkraft have to show how the waste can be stored under "sufficiently safe" conditions to await final storage.

This means that there is no more talk about "safe storage." This also means that the government connects the conditions to the operation instead of to the closing of the reactors.

The research programs have to be accounted for to the government each year and if there is any doubt the government will be able to put the operation permit on probation.

The power companies will receive special interim regulations so that they can immediately shift from the requirements of the condition law and instead be governed by the operation laws. The first permits for nuclear power will be running out between 1985 and 1990.

Law More Flexible

The new law will be more flexible than the condition law which was based on the technical competency of the time when the permit was granted. The radiation protection can now become enhanced to take into account new information without the law being an obstacle.

On the whole the politicians agree on all these matters.

In the nuclear power legislation committee Karl-Erik Olsson of the Center Party originally gave up the old requirement for "completely safe" storage in exchange for the new flexible regulations. Minister of Energy Dahl has also during the spring and the fall held a number of information sessions with other parties regarding mainly the nuclear power legislation. Hereby former Minister of Energy Olof Johansson (the Center Party) has tested a number of prohibition requirements that the Center Party brought up last time at the annual meeting in Värderborg.

The Center Party is of the opinion that the law should clearly express that nuclear power should be stopped at the latest by 2010, that the expansion limits apply also to heat reactors, that conversion should be prohibited and further that both export of Swedish nuclear power technology as well as uranium mining be prohibited.

Expansive Matter

With the risk of increased spreading of nuclear power in the background the Center Party is of the opinion that Sweden will have problems in regard to disarmament if the export of nuclear weapons will be allowed to continue.

After her trip to the United States Minister of Energy Dahl recently said that she has no plans to stop any possible export of heat reactors from Asea-Atom.

The Center Party also wants clarification as to whether the expression "sufficient safety" for waste storage involves a change in the ambition level other than what the condition law determined. Other obscure issues regard what rate of research progress the authorities can expect from the power companies. There is explosive material here for continued political outbursts about energy for the coming few years.

The government is presenting its proposal today, Thursday, and after hearings by the legislative council a proposition will be put on the Riksdag table in the beginning of November.

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SWEDEN

BRIEFS

ENCAPSULATION OF NUCLEAR WASTE--Under contract to the Swedish organization SKBF (Nuclear Fuel Supply) and KBS (Nuclear Fuel Safety) the Asea Company has developed in its Robertsfors (North Sweden) high-pressure laboratory a process for encapsulating burnt-out nuclear fuel in copper. The new process is based upon the technique which had been developed earlier for encapsulating radioactive waste in synthetic corundum which guarantees an extraordinarily permanent encapsulation. In the new process seven to nine fuel element bundles containing in all as much as 1,800 kg of burnt-out uranium dioxide are placed in a copper receptacle having a wall thickness of 100 mm. The entire space between and in the fuel element bundles is filled with pure copper powder having a quality which makes it easily poured. The receptacle is then capped with a massive copper cover and its gaseous content having been pumped out it is then hermetically encapsulated in a thin-walled sheet metal casing. In a hot isostat press the copper receptacle is heated to 500° C while the atmospheric pressure is increased up to 1,500 bar, so that receptacle, cover and copper powder are compacted into a perfectly seamless capsule having properties like those of forged copper. At the end of 2 hours the pressure is lowered and the finished capsule, after quality control, is transported to its final disposition. Thus far two half-scale copper capsules have been pressed. [Text] [Zurich NEUE ZUERCHER ZEITUNG in German 20 Jul 83 p 25] 8008

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